



WORKING LANDS
INVESTMENT PARTNERS, LLC

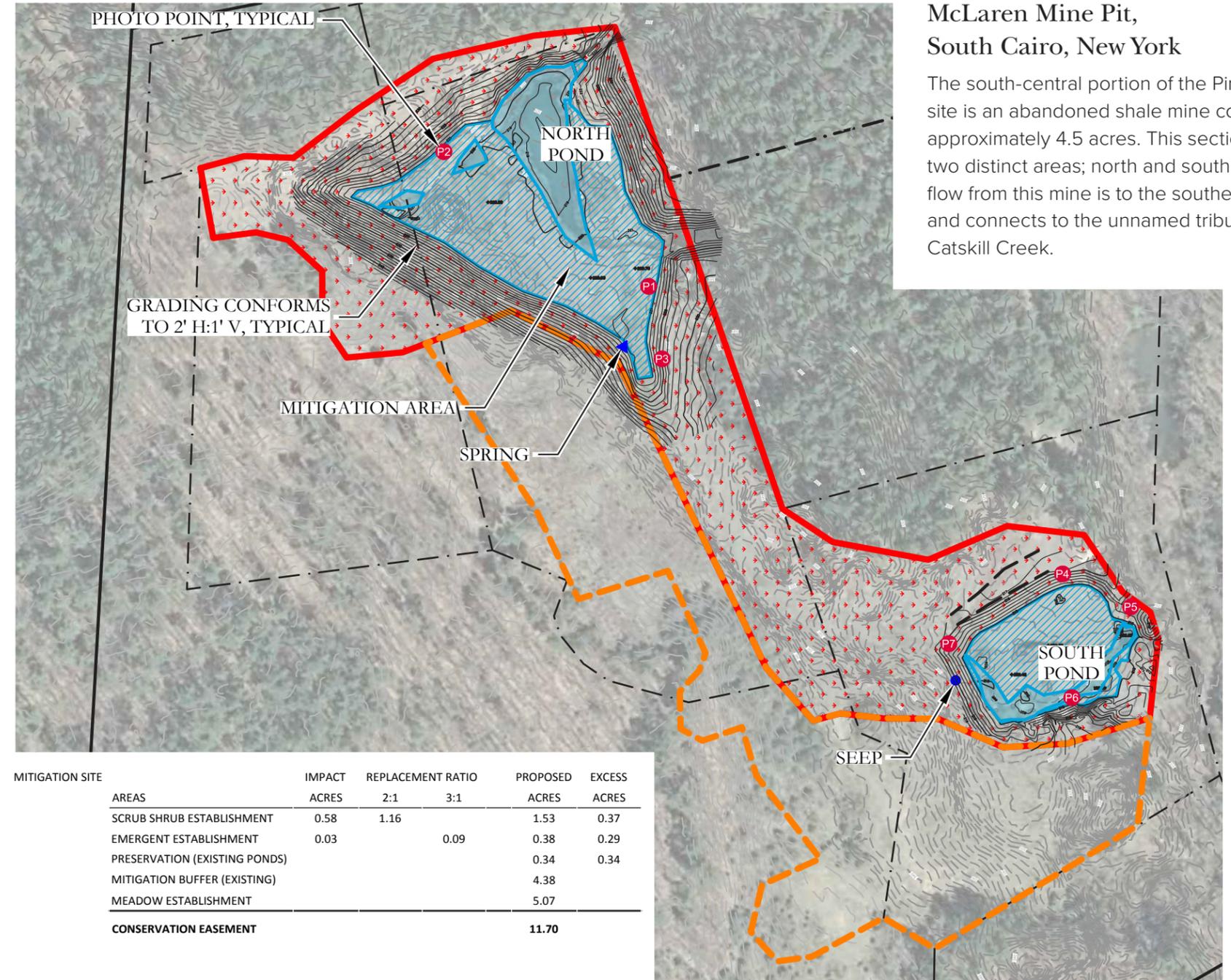
Mower McLaren Pit

WETLAND RESTORATION

TOWN OF CATSKILL,
GREENE COUNTY, NEW YORK
SEPTEMBER 2018

Introduction

On behalf of CSX Transportation, Inc. - WLIP has conducted this wetland mitigation restoration to compensate for the lost wetland acreage and reduced wetland functions and values associated with the construction and operation of the Catskill Second Mainline Project. Compensatory mitigation was completed for a total of 0.61 acres of impacted wetland under the jurisdiction of the USACE. Of the 0.61 acres of permanent wetland impact, 0.58 acres are under the jurisdiction of the NYSDEC, and mitigation was performed to compensate for these impacts.





Part 1

Photos of the old mine pit 2015. Side slopes were rough, with sparse vegetation, and required grading to blend into the surrounding landscape.



Part 2

Over a period of several months in 2016, earth moving equipment was brought in to excavate and grade the shale pit into the designed wetland habitats. Thousands of cubic yards of rock, debris and soil were excavated. Loose gravels were gently graded to blend with the perimeter elevations. Microtopography was introduced to the wetlands to provide refuge habitat for amphibians and hydrological supply for drier periods. Eight inches of top soil was placed on the overall footprint.



Part 3

Site Undergoes Stabilization and Gains Hydrology

Over the period of recovery, plants naturally colonized the site. One species, *Typha latifolia* (Common cattail) formed extensive stands. Even though Cattail is known to be excellent for water quality and good for wildlife habitat, it is listed on New York state Invasive species list. Therefore, the crew spent a full week in April 2018 hand-removing the Cattails. Over the winter, the rainfall and snow filled the ponds and hydrology was established.



Part 4

Planting Scrub Shrub and Emergent Marsh Wetlands

In May 2018, full crews were on site pulling out the cattail (hand removal). This labor-intensive effort resulted in near complete removal on both ponds. Most of the cattail was pulled out, root and all, keeping re-sprout to a minimum. Cattail will be controlled over the monitoring period.

During the same weeks in mid-May, the crews adjusted the pond outlets to drain excess water from the site while maintaining wetland hydrology. A load of compost/topsoil was placed in the shrub planting areas. The first delivery of shrubs and two inch plugs arrived May 9, and a second delivery arrived on June 14. Planting and seeding proceeded from lower pond to upper pond. Seeding was done by hand according to the appropriate mixes. Organic matter (topsoil/wood chips) was added around each shrub to promote survival. Additional plants were added in July to bolster the coverage, and small adjustments made to promote the proper hydrology.



Part 5

Project Completion

July 2018, the uplands were once again over-seeded with a native upland mix. Additional plants and seed were added to each pond to increase density and coverage. This was worthwhile, as the site met the mitigation criteria in 2018: 85% cover by native hydrophytes, 85% survival of planted shrubs, and less than five percent cover of invasive species. Also, the hydrology requirements were met.

Modifications to the site for erosion/sediment control were performed throughout the summer. These were recommended by weekly SWPPP monitoring reports. Annual wetland monitoring was conducted on August 22-23, 2018.

These wetlands are used by wildlife in numerous capacities, including offering shelter, corridors for forage, drinking water, and breeding areas. Small pools of standing water within the wetlands in the spring serve as breeding areas for amphibians. The shrub cover in the wetlands provides migratory stopover and breeding habitat for songbirds as well as habitat for small mammals such as cottontail rabbit, mice and voles. While foraging opportunities exist in the wetlands for larger mammals such as whitetail deer and coyote, the wetlands are more valuable to smaller herbivorous wildlife for cover, water and breeding.



Transformation

1. View south over the lower pond (near PP-4) taken 10/31/2016 and again after all planting and seeding 8/23/2018.
2. Excavation was completed in 2015, snags and logs have been placed, and full planting and seeding was completed in 2018 (photos right). Wetland is design to hold enough water to support palustrine scrub shrub and palustrine emergent marsh habitat, but not so much that it floods the plants.



Transformation

1. Lower pond with erosion and sediment controls in place, 2015.
2. Lower pond during planting, May, 2018.
3. The pond in August of 2018, fully grown in, holding water, and producing tadpoles, amphibians and fish.







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